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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/768,074	01/23/2001	Robert Christopher Dixon	AUS920000614US1	2499

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EXAMINER

TSAI, CAROL S W

ART UNIT PAPER NUMBER

2857

DATE MAILED: 09/25/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/768,074

Applicant(s)

DIXON ET AL.

Examiner

Carol S Tsai

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 July 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-14 and 16-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-14 and 16-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Objections

2. Claims 1-7, 14, and 16-20 are objected to because of the following informalities:

In claim 1, line 3, "output on a single single fan sense node" should read

- - output on a single fan sense node - -.

In claim 1, line 4, "tack signal" should read - - tach signal - -.

In claim 14, line 5, "tack signal" should read - - tach signal - -.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 3, 6, 8, 10, 12-14, 16, and 19 are rejected under 35 U.S.C. 103(a) as being obvious over U. S. Publication 2002/0088615 to Dixon et al. in view of U. S. Patent No. 5,963,887 to Giorgio and JP405056178 to Fujisaka.

The applied reference has a common assignee and a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior

art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). For applications filed on or after November 29, 1999, this rejection might also be overcome by showing that the subject matter of the reference and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person. See MPEP§ 706.02(l)(1) and § 706.02(l)(2).

With respect to claims 1, 6, and 19, Dixon et al. disclose a multiple fan monitoring circuit for use with a plurality of fans, wherein each of said plurality of fans operates at a different frequency and generates a tach signal indicative of said fan operation that is output on a single fan sense node, wherein each of said tach signals is output concurrently with each of the other said tach signals on said single fan sense node, comprising: a plurality of fans (fans 310 and 320 shown on Fig. 3A); a frequency processing circuit (processor 330 shown on Fig. 3A); and a summing circuit (logic circuit 340 shown on Fig. 3A), coupled to said fan sense node fan sense node (fan sense pin 330a shown on Fig. 3B), that combines said waveshaped tach signals into a single combined signal (see Abstract, lines 1-5 and paragraphs 0010, 0012, 0023, and 0025).

Dixon et al. do not disclose a plurality of shaping networks being coupled to said a frequency processing circuit, wherein each of said plurality of waveform shaping networks is coupled to a corresponding one of said plurality of fans and utilized to waveshape a tach signal generated by said corresponding fan.

Giorgio teaches a shaping network (filter 22 shown on Fig. 1), wherein the waveform shaping network is coupled to said plurality of fans and utilized to waveshape tach signals generated by said fans (see col. 3, line 56 to col. 4, line 55).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Dixon et al.'s method to include a shaping network, wherein the waveform shaping network is coupled to said plurality of fans and utilized to waveshape tach signals generated by said fans, as taught by Giorgio, in order that square tach feedback signals with all unnecessary high frequency components can be removed out by the shaping network.

The Examiner takes Official Notice that it is known to duplicate or multiplying components in order to duplicate or multiply their functions.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Dixon et al. in combination with Giorgio's system to include a plurality of shaping networks, in order that square tach feedback signals with all unnecessary high frequency components can be removed out by shaping networks respectively.

Dixon et al. do not disclose a frequency discriminator, coupled to said summing circuit, that separates said single combined signal into multiple components, wherein each of said multiple components corresponds to a particular fan in said plurality of fans.

Fujisaka teaches a frequency discriminator, coupled to said summing circuit, that separates said single combined signal into multiple components, wherein each of said multiple components corresponds to a particular fan in said plurality of fans (see Constitution, lines 1-11)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Dixon et al.'s system to include a frequency discriminator, coupled to said summing circuit, that separates said single combined signal into multiple components, wherein each of said multiple components corresponds to a particular fan in said plurality of fans, as taught by Fujisaka, in order the component of the frequency can be extracted.

As to claims 8 and 12, Dixon et al. disclose a method for monitoring a plurality of fans utilizing a single sense node, wherein each of said plurality of fans operates at a different frequency and generates a tach signal indicative of said fan operation, said method comprising: a plurality of fans (fans 310 and 320 shown on Fig. 3A) and combining said waveshaped tach signals at said single sense node (a fan sense pin 330a shown on Fig. 3A) into a single combined tach signal (see Fig. 3A and paragraph 0023).

Dixon et al. do not disclose waveshaping each of said tach signals generated by said plurality of fans.

Giorgio teaches waveshaping each of said tach signals generated by said plurality of fans (see col. 3, line 56 to col. 4, line 55).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Dixon et al.'s method to include waveshaping each of said tach signals generated by said plurality of fans, as taught by Giorgio, in order that square tach

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feedback signals with all unnecessary high frequency components can be removed out by the shaping network.

Dixon et al. do not disclose separating said single combined tach signal into multiple components, wherein each of said multiple components corresponds to an associated fan in said plurality of fans.

Fujisaka teaches separating said single combined tach signal into multiple components, wherein each of said multiple components corresponds to an associated fan in said plurality of fans (see Constitution, lines 1-11)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Dixon et al. in combination with Fujisaka 's system to include separating said single combined tach signal into multiple components, wherein each of said multiple components corresponds to an associated fan in said plurality of fans, as taught by Fujisaka, in order the component of the frequency can be extracted.

As to claim 14, Dixon et al. also disclose a data processing system, comprising: a processor (processor 330 shown on Fig. 3A) having at least one single fan sense node (a fan sense pin 330a shown on Fig. 3A); a plurality of fans (fans 310 and 320 shown on Fig. 3A), wherein each of said plurality of fans operates at a different frequency and generates a tach signal indicative of said fan operation that is output on said on a single fan sense node, wherein each of said tack signals is output concurrently with each of the other said tack signals on said single fan sense node (see paragraphs 0010, 0012, 0020, 0023 and 0025), including: a frequency processing circuit (processor 330a shown on Fig. 3A), that receives said waveshaped tach signals at said single fan sense node, wherein said frequency processing circuit includes: a

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summing circuit (logic circuit 340 shown on Fig. 3A), coupled to said fan sense node fan sense node (fan sense pin 330a shown on Fig. 3A), that combines said waveshaped tach signals into a single combined signal (see Abstract, lines 1-5 and paragraphs 0010, 0012, 0023, and 0025).

Dixon et al. do not disclose a multiple fan monitoring circuit, coupled to said plurality of fans.

Giorgio teaches a multiple fan monitoring circuit (tachometers 34A-34N shown on Fig. 1), coupled to said plurality of fans.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Dixon et al.'s system to include a multiple fan monitoring circuit, coupled to said plurality of fans, as taught by Giorgio, in order that speed of fans can be detected.

Dixon et al. do not disclose a plurality of shaping networks being coupled to said a frequency processing circuit, wherein each of said plurality of waveform shaping networks is coupled to a corresponding one of said plurality of fans and utilized to waveshape a tach signal generated by said corresponding fan.

Giorgio teaches a shaping network (filter 22 shown on Fig. 1) being coupled to said a frequency processing circuit, wherein the waveform shaping network is coupled to said plurality of fans and utilized to waveshape tach signals generated by said fans (see col. 3, line 56 to col. 4, line 55).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Dixon et al.'s method to include a shaping network being coupled to said a frequency processing circuit, wherein the waveform shaping network is coupled to said plurality of fans and utilized to waveshape tach signals generated by said fans, as taught by

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Giorgio, in order that square tach feedback signals with all unnecessary high frequency components can be removed out by the shaping network.

Dixon et al. in combination with Giorgio do not disclose a plurality of shaping networks.

The Examiner takes Official Notice that it is known to duplicate or multiplying components in order to duplicate or multiply their functions.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Dixon et al. in combination with Giorgio's system to include a plurality of shaping networks, in order that square tach feedback signals with all unnecessary high frequency components can be removed out by shaping networks respectively.

Dixon et al. do not disclose a frequency discriminator, coupled to said summing circuit, that separates said single combined signal into multiple components, wherein each of said multiple components corresponds to a particular fan in said plurality of fans.

Fujisaka teaches a frequency discriminator, coupled to said summing circuit, that separates said single combined signal into multiple components, wherein each of said multiple components corresponds to a particular fan in said plurality of fans (see Constitution, lines 1-11)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Dixon et al.'s system to include a frequency discriminator, coupled to said summing circuit, that separates said single combined signal into multiple components, wherein each of said multiple components corresponds to a particular fan in said plurality of fans, as taught by Fujisaka, in order the component of the frequency can be extracted.

As to claims 3, 10, 13, and 16, Dixon et al. do not disclose an analog to digital converter.

Giorgio teaches an analog to digital converter (A/D convert 72 shown on Fig. 2) (see col. 5, lines 11-17).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Dixon et al.'s method to include an analog to digital converter, as taught by Giorgio, in order that analog signal can be converted to digital signal.

5. Claims 4, 11, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dixon et al. in view of Giorgio and Fujisaka as applied to claims 1, 2, 8, and 14, above, and further in view of U. S. Patent No. 5,926,386 to Ott et al.

As noted above, with respect to claims 4, 11, and 17, Dixon et al. in combination with Giorgio and Fujisaka teaches all the features of the claimed invention, but does not disclose an operational amplifier (op-amp) configured as a summer.

Ott et al. teach an operational amplifier (op-amp) configured as a summer (see col. 6, lines 27-32).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Dixon et al. in combination with Giorgio and Fujisaka's system to include a operational amplifier (op-amp) configured as a summer, as taught by Ott et al., because summer which may be constituted by a conventional integrated circuit operational amplifier which is known to be utilizable for the purpose of summing signals.

6. Claims 5, 9, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over as Dixon et al. in view of Giorgio and Fujisaka as applied to claims 1, 8, and 14 above, and further in view of U. S. Patent No. 6,163,266 to Fasullo et al.

As noted above, with respect to claims 5, 9, and 18, Dixon et al. in combination with Giorgio and Fujisaka teaches all the features of the claimed invention, but does not disclose the waveform shaping circuit including a resistor and a capacitor.

Fasullo et al. teach the waveform shaping circuit including a resistor and a capacitor (see col. 3, lines 35-40).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Dixon et al. in combination with Giorgio and Fujisaka 's system to include the waveform shaping circuit including a resistor and a capacitor, as taught by Fasullo et al., in order to filter out noise contained in the amplified intermediate signal from the differential amplifier circuit (see Fasullo et al. col. 3, lines 36-37).

7. Claims 7 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dixon et al. in view of Giorgio and Fujisaka as applied to claims 1 and 14 above, and further in view of U. S. Patent No. 5,604,654 to Wille et al.

As noted above, with respect to claims 7 and 20, Dixon et al. in combination with Giorgio and Fujisaka teaches all the features of the claimed invention, but does not disclose the waveform shaping network including a blocking capacitor.

Wille et al. teach the waveform shaping network including a blocking capacitor (see col. 9, lines 21-29).

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It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Dixon et al. in combination with Giorgio and Fujisaka's system to include the waveform shaping network including a blocking capacitor, as taught by Wille et al., in order to block the DC component of the brush current (see Wille et al. col. 9, lines 28-29).

Response to Arguments

8. Applicant's arguments with respect to claim 1, 3-14, and 16-20 have been considered but are moot in view of the new ground(s) of rejection.

Contact Information

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carol S. Tsai whose telephone number is (703) 305-0851. The examiner can normally be reached on Monday-Friday from 7:30 AM to 4:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marc S. Hoff can be reached on (703) 308-1677. The fax number for TC 2800 is (703) 308-7382. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the TC 2800 receptionist whose telephone number is (703) 308-1782.

In order to reduce pendency and avoid potential delays, Group 2800 is encouraging FAXing of responses to Office actions directly into the Group at (703) 308-7382. This practice may be used for filing papers not requiring a fee. It may also be used for filing papers which require a fee by applicants who authorize charges to a PTO deposit account. Please identify the

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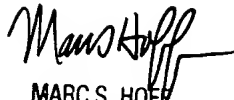
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examiner and art unit at the top of your cover sheet. Papers submitted via FAX into Group 2800 will be promptly forwarded to the examiner.

Carol S. Tsai

09/04/03


MARC S. HOFF
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800